MODIS Technical Team Meeting
Thursday, June 21, 2001
3:00 PM

Vince Salomonson chaired the meeting. Present were Steve Kempler, Wayne Esaias, Bill Barnes, Dorothy Hall, Skip Reber, Robert Wolfe, Eric Vermote, and Bruce Ramsay, and Michael King, with Rebecca Lindsey taking the minutes.

1.0 Schedule of Upcoming Events

- ESIP Federation Meeting — July 24-26, 2001
  University of North Dakota, Grand Forks
- MODIS Science Team Meeting — September 24-26, 2001
  BWI Airport Marriott

2.0 Meeting Minutes

Correction: The number of SAFARI granules that the GES DAAC had processed up to June 7 was about 200 out of 2400, not 20 out of 240, as was reported in the minutes from June 7, 2001.

2.1 General Discussion

Salomonson brought up an issue from the DAAC User Working Group Meeting held June 14-15, 2001, which was that MODIS ought to put out a sampled L1B data product. Several options were discussed for how to do this, including using already existing coarse resolution or sampled products generated by Vermote for the Land product global browse. Salomonson wondered how Vermote's algorithm works. There was discussion of whether it was a sub-sampled product or an average and which would be better. Vermote said that code for both already existed. Esaias asked whether the products are filtered for clouds. Esaias also said that the discussion a the DAAC meeting was initiated by Bill Rossow, who said that it is better to pick individual pixels (sampling) rather than taking an average because averaging messes up the clouds. Salomonson added Rossow advocated using the nadir pixel. Esaias mentioned that selecting pairs of pixels might be complicated because any combination you picked might not be good for all bands. He also indicated that there is the CERES model of subsetting and the L1A oceans subsetting that are already at the DAAC, and that we could make sure folks know about those. King commented that he thought the DAAC or MODAPS was already producing a L1B subset (every 5^{th} pixel and every 5^{th} scan line, but all spectral bands) to send to NASDA. Wolfe reported after the meeting that Vermote's sub-sampled generated by MODAPS is being sent to the NASDA GLI team.

Wolfe agreed (on behalf of SDST) to take an action to look into all the options, Kempler commented that it would be less complicated for the DAAC to simply ingest a product, if it is already being produced in MODAPS, than to begin running a PGE. There was also discussion about the additional volumes and Wolfe indicated that they should be minimal.

The second issue raised by Salomonson is what to do with consistent year, now that the MODIS upset means that there will be some lost data. Salomonson suggested we press on with processing data from November 2000 to the time of the MODIS shutdown (i.e. the backward reprocessing stream) and figure out how to accommodate the gap due to MODIS shutting down later, when we have the event straightened out. Barnes commented that once MODIS comes back up, if it is using different hardware, the calibration might change.

Salomonson then brought up the issue about developing a policy for introducing changes to code during the "consistent year". Wolfe had sent around an email with a first draft. Salomonson said he considered a consistent year to be something that produces products that have scientific consistency, even if they are produced in a different way. The main thing would be to not change the science. Hall asked, "But what if different means better?" Salomonson acknowledged that "better" may mean different things to different people. Vermote commented that it would be possible to introduce a change that would simply reduce noise, and not change the trend.

Salomonson asked Ramsay what experience NOAA / NESDIS had with this issue. Ramsay indicated that when users such as the National Weather Service require the best operational data available for current weather forecasting, NOAA / NESDIS implements the identified improvement. This product improvement may make the long-term data set inconsistent, which may then require reprocessing if needed by, e.g., the climate community. For example, GOES looping was introduced in NOAA / NESDIS operational Northern Hemisphere snow mapping in the mid-1980s. This change in mapping procedures allowed snow meteorologists a better opportunity to differentiate snow from clouds and thus provide a more accurate snow map. A retrospective analysis of the snow map climate record indicates a step change in snow cover at approximately the same time period as the introduction of GOES looping. We are currently evaluating the possible impact of this change in procedures (and others) on the snow climate data set. Any change in process or procedures must be thoroughly documented and made available to users. Any change will also evoke questions in the applicable science community with respect to the level of consistency of the data set being considered.

Hall indicated that they are planning improvements in the snow product for Fall, having to do with cloud mask, and they would hate to have to wait to introduce

them. Salomonson indicated that Wolfe's proposal calls for a one-page summary from anyone wanting to make changes during consistent year. . In essence changes will have to be justified when there is any possibility of the science or applications being affected. Wolfe added that the one page would describe the effects on the product as well as any foreseeable changes in downstream products The Team would consider the changes on a case-by-case basis. The exact procedure that will be followed is TBD.

2.2 Instrument Update

Barnes reported that with respect to the MODSI shut down that they are pretty sure it was something in the power supply on the "B-side". They are starting to look at scenarios for start up, and he estimates that they are still a week to two weeks away from that. They are unsure whether it was a Single Event Upset *hard* failure (meaning something was shorted out) or a SEU *soft* failure, which can be recovered. Great care will be taken when attempts are made to bring MODIS back into operation to rule out any procedure that would cause further harm

Wolfe reported that Big Foot validation activity will be moved out due to the instrument shut down, and there was interest from the validation community about where to get instrument status information. Salomonson said he was directing people to the Instrument Operations Team (IOT) / "instrument status" reports via the MODIS web page. Esaias said that the Oceans team has an update on their web site. Lindsey said that MAST would update the MODIS web page, as well.

King reported that the latest new on Aqua launch was officially no earlier than December 20th, but that it might be later than that. Barnes reported that they decided to replace the motor on the Nadir Aperture Door on Aqua. Thermal vacuum testing is scheduled for no earlier than August. Jack Xiong is out in California with SBRS working on the Band 1 and 2 gain-change issue.

Barnes reported that the Solid State Recorder problem, which occurred after the MODIS event, has been fixed. King said he thought that the two MODIS supersets which had gone down in previous weeks had come back up after this last reset.

2.3 GES DAAC Update

Kempler indicated that he wanted to sensitize the team to the situation about getting the data to the PDR server and to MODAPS. They have two ways to get data to the PDR server: Process the data in one swoop and send it to the PDR server where MODAPS can pick it up, or process the data, push them to the archive, and then pull them back out to put on the PDR server when MODAPS is ready. It is twice as much work to do it the second way. To be efficient, the

DAAC can only go as fast as MODAPS can go because eventually the task of retrieving data from the archive to put on the PDR server will compete with forward and retrospective processing.

Esaias summarized the situation by saying that the PDR server is a rate-limiting step in data production and flow. Gary Alcott has suggested adding a tape drive for the PDR server that both the DAAC and MODAPS could use. That way if MODAPS gets behind, MODAPS could read data off tape, as opposed to the DAAC pulling it from the archive.

Kempler said the tape drive was the simplest and cheapest way to handle the issue. Wolfe indicated that the idea of the tape drive in the interface is on paper, but no resources have been allocated. In the meantime there are plans to double the capacity of the PDR server. Kempler indicated he was planning to go forward with a proposal to get the tape drive. Salomonson indicated the team would be supportive of this. As part of the proposal, we should address timeliness.

2.4 Cryosphere Update

Hall asked Wolfe how long it would take MODAPS to implement the new 5 km resolution CMG code when it is delivered. Wolfe said about two weeks since they already have a previous version of the code. However if there are ECS changes (e.g. metadata) that could take longer, perhaps a month. The sooner the team notifies SDST of any metadata changes the delay will be less.

2.5 NOAA-NESDIS

Ramsay reported his attendance at a meeting of the National Interagency Fire Center, Boise, Idaho, at which MODIS data had been discussed. It appears that MODIS data (and other near real-time satellite based remotely sensed imagery, e.g., AHVRR and GOES) may be most useful to the U.S. Forest Service for two purposes: the initial phase of fire detection at the 11 regional offices, and in their watershed restoration efforts. They are currently in the review phase of a proposal for procurement of their MODIS direct broadcast receiving station. They are interested in VI, smoke and aerosol, and fire location, and also developing climatologies for the fire areas. For active fire suppression they have 12-hour update cycles for ground crews (4:00 a.m. and p.m., local time), but they also use continuous updates, to monitor changing weather conditions. There is a real interest in MODIS products.

2.6 MODAPS

Wolfe reported that MODAPS and the DAACs are just about finished with their end-to-end testing in preparation for the consistent year processing. Wolfe reported that MODAPS would begin processing tomorrow (June 22) on the both

the forward and retrospective components of the consistent year, beginning with data-days 2001/147 (forward) and 2001/064 (retrospective).

2.7 EOSDIS Update

Reber indicated that they needed PGEs 1, 2, and 3 to get ready for the MOSS test. Wolfe said he thinks they are on schedule for that delivery. Over the last week, we provided some information to Jack Kaye on an over guide request that included 14.2 million over three years for MODIS. Wolfe indicated that this request was to fully fund the June 2001 baseline for both Terra and Aqua, which asked for a 30% increase in volume, compared to the February 1996 baseline, plus going from a 3X to 5X processing capacity.

3.0 Action Items

3.1 Discipline leads to meet to resolve the issue of beta-release code and science-quality code, and what we need to say about it.

Status: Open.

3.2 Technical team to discuss further the issue of predicted ephemeris data and how to improve it.

Status: Open.